SCIENCE & GOVERNMENT REPORT

10th Year of Publication

The Independent Bulletin of Science Policy

Vol. X, No. 9 | P.O. Box 6226A, Washington, D.C. 20015 | May 15, 1980

Industrial R&D Is Perking Up, NSF Reports

A new government report casts a lot of doubt on the taken-for-granted view that American industry became disenchanted with research and development in the 1970s and perilously cut back on its R&D activities.

In the ongoing search for culprits responsible for the nation's productivity problems, the alleged R&D lag is a top suspect. But the new report, issued by the National Science Foundation, indicates that industrial R&D was far from anemic throughout the past decade. The report works with numbers that extend no further than January 1978, but given the time lag that exists between R&D and the marketplace, it is doubtful that any R&D ups or downs in the few intervening years have had a major impact on the presentday economy.

Titled *Research and Development in Industry: 1977,* the NSF study is the 22nd of a series that started in 1953.

Among its major findings are:

• "Real" spending for R&D by industrial firms — using their own money as well as government funds — went up 5 per cent between 1976 and 1977, to a total of $29.9 billion. In terms of purchasing power, this put industrial R&D at the record level attained in 1968-69, when the space program was in high gear.

• "The force behind continued real growth in industrial research and development has been the investment of companies' own funds in R&D activities" — up by an annual rate of 11 per cent in 1977. "This sharp rise, 5 per cent in real terms," NSF added, "continues a general trend of real-dollar increases begun in 1972. These gains have closely approximated the pattern of industrial sales growth during the 1971-77 period." In the same 1976-77 period, federal funds for industrial R&D rose by a real 4 per cent, to a total of $10.5 billion, approximately one-third of the nation's overall spending for R&D within industry.

British Columbia Providing $50 Million for R&D Parks---Page 2

• The claim that corporate management tends to shun R&D relative to previous interest is not supportable. "In the late sixties and early seventies," NSF reports, corporate management tended to make short-term, results-oriented R&D funding decisions. Top management now seems to recognize, however, that longer-term research and development can contribute significantly to corporate sales growth and provide some answers to energy and pollution problems. R&D officials in a number of industries indicated that this growth in research and development is expected to continue into the eighties."

• Industrial employment of scientists and engineers increased by 22 per cent between 1972 and 1978, when it reached a record high of 400,100. "Since 1972, there has been a gradual rise in the number of R&D scientists and engineers employed by industry, advancing even during the 1974 recession, when total civilian employment declined over 1 per cent.

• Industry is showing more interest in basic research, on which it spend $910 million in 1977 — a real increase of 5 per cent over the previous year. NSF found industry officials predicting a continued expansion of support for basic research.

• In regard to the alleged burdens of meeting government regulations — which industry says detracts from productive R&D — the aircraft industry reported that

(Continued on Page 2)

In Brief

The prospects for bureaucratic carnage are appalling or delightful — depending on one's point of view — if Republican frontrunner Ronald Reagan makes it to the White House. He's promised several times to abolish the newly formed Department of Education as well as the Department of Energy. Departmenticide on that scale is unprecedented.

The Department of Education, whatever its lifespan may be, officially came into being May 4, and at the same time, the Department of Health, Education, and Welfare — shorn of its education activities — was formally retitled the Department of Health and Human Services. The all important abbreviations are ED and HHS.

Paul L. Sitton, a longtime sidekick of National Academy of Science's President Philip Handler, has been named top staff man at the Academy — Executive Officer. He succeeds Robert M. White, who took the Academy job in February 1979, coming from the directorship of the National Oceanic and Atmospheric Administration. White is going to the presidency of the University Corporation for Atmospheric Research, Boulder. Sitton, who has been Handler's special assistant since 1970, was the founding administrator of the Urban Mass Transit Administration and has held various other senior government posts.

British Columbia Beckons High-Technology

With an unusually large bankroll — at least $50 million — British Columbia is moving aggressively to lure both Canadian and American high-technology firms to set up shop on a planned chain of university-affiliated research parks in the westernmost Canadian province.

To be known as Discovery Parks, the industrial sites are intended not only to provide a new technology base for a province whose economy is overdependent on the production of raw materials, particularly lumber, but also to stimulate interaction between industry and the academic community. The gulf between the two sides is wide in Canada.

Each of the three major universities in British Columbia — the University of British Columbia, Simon Fraser University and the University of Victoria — will have a Discovery Park and a fourth will be developed at the British Columbia Institute of Technology, a two-year technical college.

The response from the universities has been mixed. Some people are very enthusiastic; others express caution and cynicism. One fear in the academic community is that the Discovery Parks will give industry too much influence over the universities. The parks will be operated by Discovery Parks Inc., a government-funded organization whose policy-making board consists of five businessmen and British Columbia's Science and Universities Minister, Pat McGeer. Another concern is that British Columbia's pro-business Social Credit government will spend money on the parks that would otherwise have gone directly to the universities.

But enthusiasts such as George Pedersen, President of Simon Fraser University, dismiss such fears and speak of the benefits they foresee Discovery Parks bringing to the universities, the firms that move to them, and the economy of British Columbia. Pederson is one of many university administrators who think Canada has so far

(Continued on Page 3)

INDUSTRIAL R&D *(Continued from Page 1)*

only 5 per cent of its R&D was forced on it by government regulations. The NSF study didn't report further on this sensitive issue, except to note that the high cost of testing drugs has made it unprofitable "for drug companies to market marginal improvements in or reformulations of existing drugs." The industry, it continued, is looking for big winners and, therefore, is putting more emphasis on basic research aimed at "breakthrough products which will yield a significant return on the amount spent for testing."

(Research and Development in Industry: 1977 is available without charge from: Division of Science Resources Studies, National Science Foundation, 1800 G St. Nw., Washington, DC 20550.)

Proportion of industrial basic research by field of science

[Per cent distribution]

Field of Science	1967	1972	1976	1977
Total	100	100	100	100
Chemistry	26	31	31	31
Other physical sciences	23	16	13	13
Mathematics	2	2	2	2
Environmental sciences	2	1	2	2
Engineering	27	31	25	26
Biological sciences	11	10	12	14
Clinical & medical sciences		4	4	3
Other	8	6	10	9

SOURCE: National Science Foundation

Industrial funds for basic research, applied research, and development performance: 1953-77

[Dollars in millions]

Year	Total	Basic research	Applied research	Development
1953	$ 3,630	$151	$ 726	$ 2,753
1954	4,070	166	814	3,090
1955	4,640	189	928	3,523
1956	6,605	253	1,268	5,084
1957	7,731	271	1,670	5,790
1958	8,389	295	1,911	6,183
1959	9,618	320	1,991	7,307
1960	10,509	376	2,029	8,104
1961	10,908	395	1,977	8,537
1962	11,464	488	2,449	8,527
1963	12,630	522	2,457	9,651
1964	13,512	549	2,600	10,362
1965	14,185	592	2,658	10,934
1966	15,548	624	2,843	12,081
1967	16,385	629	2,915	12,842
1968	17,429	642	3,124	13,663
1969	18,308	618	3,287	14,403
1970	18,062	602	3,426	14,034
1971	18,311	590	3,413	14,308
1972	19,539	593	3,512	15,434
1973	21,233	631	3,822	16,780
1974	22,867	699	4,284	17,884
1975	24,164	729	4,566	18,869
1976	26,938	817	5,101	21,020
1977	29,907	910	5,652	23,345

SOURCE: National Science Foundation

. . .Universities Wary of Industrial Ties

(Continued from Page 2)

failed to derive economic benefit from its academic resources.

Senior administrators and faculty members at Simon Fraser University were originally highly suspicious of the proposed Discovery Park and they wanted to retain control over its activities. But Pedersen persuaded them that this would be impractical.

Under the lease agreement signed recently by Simon Fraser and Discovery Parks Inc., the university can only specify in broad terms the types of firms that will be eligible to move onto its 80-acre park; it will not have a say in the operation of each tenant. "We had to persuade the university that this was primarily a business venture," said John MacDonald, Chairman of the Discovery Parks board. No company would agree to set up a research and development unit on the park if it were subject to interference from the university, he added.

At the University of British Columbia (UBC), the biggest academic institution in the province, the issue of university control over its proposed research park is causing more difficulty. Negotiations between UBC and Discovery Parks have been in progress for many months, and a university spokesman said agreement might not be reached for many more.

A major sticking point in the discussions at UBC is whether companies should be allowed to carry out small-scale manufacturing operations on the Discovery Park there. According to Robert Stewart, chief executive at British Columbia's Ministry of Science and Universities, UBC is insisting that no manufacturing take place beyond the pilot plant stage, while Discovery Parks Inc. maintains that would be an unreasonable restriction because there is often no clear distinction between R&D and production for small high-technology companies.

Light manufacturing will be permitted on the parks at Simon Fraser University and the British Columbia Institute of Technology. The 100-acre park at the Institute is expected to grow faster than the three university parks — possibly because less academic pride is at stake. The government has already committed $13 million to put up a multiple-tenancy structure there for small companies, and to construct roads and other infrastructure for the park.

The province's third university, the University of Victoria, is taking a cautious, low-key approach to the whole idea. It wants to have a small Discovery Park, but in its own buildings and under strict university control. Discussions with Discovery Parks Inc. over the way this would fit in with their overall plans have not started.

Although prospective tenants have been lined up for all four Discovery Parks, people associated with the project say it is still too early to tell how the character of the parks will develop. "I think each will tend to take on the character of the institution it is associated with," said Discovery's Chairman MacDonald. "We will try to

(Continued on Page 4)

Trudeau Downgrades S&T Post

Two months have passed since Canadian Prime Minister Pierre Trudeau named John Roberts as Minister of State for Science and Technology, following the general-election victory of the Liberal party. Yet Canada's scientific associations still have not persuaded Roberts to meet with them.

The trouble is that Roberts, a Toronto lawyer, is also Environment Minister, and that job is taking up most of his time. Ottawa's research lobbyists are thinking wistfully back to Heward Grafftey, who held the science and technology portfolio full-time in the ousted Conservative government and therefore had plenty of time to listen to them.

The Canadian scientific community heard with relief last week that the big increases in the research councils' budgets proposed last year by the then-ruling Conservatives (SGR Vol. IX, No. 21), will be implemented by the Liberals — for 1980-81 at least. But the government's long-term intentions remain uncertain.

© Science & Government Report, Inc., 1980

ISSN 0048-9581

Editor and Publisher
Daniel S. Greenberg

Associate Publisher
Wanda J. Reif

Contributing Editor
Anne Roark

Circulation Manager
Susan Burke

European Correspondents
Michael Kenward (London); Francois Seguier (Paris)

Independently published by *Science & Government Report,* Inc., twice monthly, except once each in January, June & July. Annual Subscription: Institutions, $89.50 (two years, $168.50); individuals, $48.50 (two years, $82.50). Editorial offices at 3736 Kanawha St., N.W., Washington, DC 20015. Tel. (202) 244-4135. Second class postage paid at Washington, DC. Please address all subscription correspondence to Box 6226A, Northwest Station, Washington, DC 20015. Reproduction without permission is prohibited. SGR is available on Xerox University Microfilms. Claims for missing back issues will be filled without charge if made within six months of publication date.

Inquiry Examining Uses of Social Sciences

All those professional and amateur doubts about the utility of the social and behavioral sciences have led the National Science Foundation to put up $350,000 for the National Academy of Sciences to take a deep look into the subject.

The study, due for completion by the end of 1981, is being carried out by a specially appointed Committee on Basic Research in the Behavioral and Social Sciences, within the Assembly of Behavioral and Social Sciences, which — patience, now — is part of the National Research Council of the National Academy of Sciences.

In the key spot of staff director is Donald J. Treiman, Professor of Sociology, on leave from UCLA, who told SGR that the study was inspired by skepticism within the professional community as well as by criticism from outside, including that of Senator William Proxmire (D-Wisc.). Treiman said that, particularly in regard to the social sciences, there were high hopes in the 1960s of "breakthroughs that would provide a scientific basis for the social sciences, as well as contributions to solutions of the nation's problems." These expectations, he said, have been followed by disappointment and skepticism.

As announced in the April *ABASS,* the newsletter of the Assembly of Behavioral and Social Sciences, the Committee "plans to explore fundamental issues concerning basic research in these sciences, including criteria of social utility and the effects, both good and bad, that the social and behavioral sciences have on society."

Treiman said the Committee will publish a report and a collection of papers that it is commissioning.

Inquiries regarding the Committee should be addressed to: Donald J. Treiman, Assembly of Social and Behavioral Sciences, National Academy of Sciences, 2101 Constitution Ave. Nw., Washington, DC 20418.

Committee Membership

Robert McC. Adams (Chairman), Dean of the Division of the Social Sciences, professor of anthropology, University of Chicago.

William J. Bennett, National Humanities Center, Research Triangle Park, N.C.

David A. Hamburg, Institute of Medicine, Washington, D.C.

Juanita Kreps, Durham, N.C.

Gardner Lindzey, Center for Advanced Study in the Behavioral Sciences

Elizabeth F. Loftus, University of Washington

James G. March, Stanford University

Jessica T. Mathews, The *Washington Post*

Philip Morrison, Massachusetts Institute of Technology

Charles A. Mosher, Smithsonian Institution

Kenneth Prewitt, Social Science Research Council

Peter H. Rossi, University of Massachusetts

Neil J. Smelser, University of California, Berkeley

Sam Bass Warner, Boston University

Robert B. Zajonc, University of Michigan

BRITISH COLUMBIA

(Continued from Page 3)

encourage companies to group together in a logical fashion."

High-technology electronics firms will probably form the biggest group, but any company engaged in R&D is eligible. (Pedersen is keen to attract consulting firms doing research in the social sciences to Simon Fraser.)

The Discovery Parks board has so far relied on word of mouth and personal contacts to let prospective tenants know of the facilities that will be available, but within a few months it will launch a worldwide publicity campaign. Although high-technology companies in the United States and Canada will be the prime targets, particularly electronics firms now located in California's Silicon Valley, the board is also hoping to attract firms from Europe.

A major aim is strong interaction between the firms and faulty members at the host universities. "We will be doing everything in our power to lubricate the process," MacDonald said. Each park will have a central office for liaison between tenants and the university. But as MacDonald, who has been both an engineering professor and a company president, points out, it can be extraordinarily difficult in practice to get academics and industrialists together, even if they are in close physical proximity.—Clive Cookson

(The author is Washington correspondent of the London *Times Higher Education Supplement.*)

Mahoney Becomes First Woman To Head a Major Foundation

The Commonwealth Fund, a big league philanthropic foundation that has concentrated on medical education, has elected Margaret E. Mahoney to its presidency. Mahoney, currently Vice President of the Robert Wood Johnson Foundation, thus becomes the first woman to head a major foundation. The Fund, with an endowment of $129 million and grants last year of $5.3 million, is in the top 30 of private foundations.

France: Worries About US Data Bank Lead

Paris. While the United States bemoans the erosion of the vast technological lead that it held through most of the postwar period, America's continuing dominance in the field of electronic data banks is causing a lot of concern here.

The Franco-American disparity in information systems is quite startling: With the 1980 world market estimated at $1.4 billion, the American-controlled portion amounts to about $1 billion; France's share of the market is a mere $10 million. Not surprisingly, then, the government here — which prides itself on trying to be sensitive to major technological trends of economic importance — has begun an effort to boost the homegrown information industry 15 fold by 1984.

Toward this goal, the Council of Ministers recently decided to double the grants that the government provides for organizations that wish to develop data banks, with the aim of improving access to information by scientific research organizations and industrial firms. At present, both are poorly equipped in this regard in comparison to their American counterparts. Another aim of the program is to accelerate the spread of computerized systems throughout French society, and, in the process, to boost the market for domestically produced computers, microprocessors and other high-technology information equipment.

Behind this move is the feeling that France and its European neighbors have been altogether too complacent about what's referred to here as "American informational imperialism," and that the Old World had better be quick about developing its own alternatives to Anglo-Saxon information systems. At the very least, the French feel, it would be desirable to develop English-French systems. French policy calls for pushing the European Economic Community into adopting multi-

(Continued on Page 6)

Electronic Imperialism: An Explanation of Fears

The following excerpt is from a paper, "The Informatisation of Society," by Alain Minc, Inspector of Finance, Paris; it is contained in a collection, Policy Implications of Data Network Developments in the OECD Area, *Vol. 3, 206 pages, $12.50, available from: Organization for Economic Cooperation and Development, Publications and Information Center, 1750 Pennsylvania Ave. NW., Washington, DC 20006; tel. (202) 724-1857. Also from OECD sales offices abroad.*

●

We believe that a distinction should be made between two types of data bank — the fact that data banks should not be nationally available in such highly technical fields as chemistry, materials resistance or any other technology we do not regard as a fundamental problem so long as access to foreign data banks is easy, satisfactorily priced and does not threaten to be cut off. Hence on this score we have no special comment, unless it is to want connection with existing banks. But what we do claim is that there are non-technical fields generally having to do, say, with the human sciences where data banks are being built up, mainly in the United States, and that in this regard the possession of data banks is a problem of an altogether different kind, since that of a cultural model is involved. I shall mention one example which we have tested, as it were, and which we think to be very meaningful. Today most French newspapers are being connected to the best existing news data bank, which is that of the *New York Times.* Thus if this bank is questioned regarding certain episodes of French political history, a very interesting picture is obtained, one which of course very naturally depends on the views which reporters of the *New York Times* may have held but which is not exactly the same as ours concerning our own history. We do not claim that the latter should be the only view, but there should at least be two ways of looking at our history. We already have one interpretation, that of the *New York Times*; we should now arrange for also providing a French viewpoint, since within the next ten years any journalist of a local, peripheral newspaper connected only to the *New York Times* would obtain a picture of French political history which while interesting deserves to be compared with some other slant. A second one has to do with history proper, where clearly the way information is structured is altogether fundamental, and at research level is responsible for many of the conclusions which are drawn. In our opinion this means that here again data banks should provide a dual picture in relation to our own model of cultural development. While this statement may strike you as extremely nationalistic and very traditionally French, I do want to point out that I hold no such brief concerning any discipline of a technical nature, where I believe intercommunication goes without saying and where no nationalistic problem arises. But I do so argue, very definitely, in the case of anything which seems closely to affect our cultural model and cultural identity. A sort of hard national core is involved here, one which we all have and which, unless we are careful, data banks can cause either to shift or to change.

. . .Computer Sabotage Hits Two French Centers

(Continued from Page 5)

language data banks. In this instance, they have the cooperation of the West Germans, who, though not as concerned as the French about American competition, are interested in the defense of their language.

The French obsession with multi-language data banks has led to agreements with Arab countries to study the feasibility of Anglo-Arab-French data systems. Meanwhile, Europe, led by France, prefers to drag its feet on international agreements governing trans-border data flow, pending the strengthening of its own resources.

The implementation of the government's data policies has inevitably collided with pre-existing bureaucratic rivalries. Until last year, the government agency in charge of data banks was the National Bureau for Scientific and Technical Information (NBIST), within the Ministry of Industry. As part of the effort to expand activities, BNIST established a central computer facility near Nice, in an area reserved for laboratories and high-technology industrial firms.

Technical guidance for BNIST was assigned to a steering committee headed by Pierre Aigrain, the Secretary of State for Research. Upon assuming the post, Aigrain sought control over all data policy matters. This brought him into still another conflict with Minister of Industry Andre Giraud, who had his eyes on research and development funds under Aigrain's jurisdiction. Out of this came something of a solution: The BNIST was divided, and Aigrain took charge of those activities related to pure scientific research; for this purpose, a new office was created — the Mission for the Development of Scientific and Technical Information (MIDST), with about $8 million at its disposal.

At the same time, the development of data processing equipment and of technical data banks has been assigned to the Ministry of Industry — also with $8 million. MIDST will finance long-range, speculative projects, while the work of the Ministry of Industry will focus on short-term work, aiming for getting to market within three or four years.

While the government is forging ahead with the computerization of French society, France has experienced one of the worst cases so far of data-bank sabotage.

Though there is a government advisory committee that's supposed to protect citizens against illicit use of computerized data concerning them, no serious measure has actually been taken to provide safeguards. In the face of this situation, underground groups have switched to violent action, destroying the data and software of two commercial computer centers in Toulouse. The sabotage was obviously carried out by people who knew a lot about computers. Toulouse is the French center for data processing, and most of France's major enterprises in the industry have laboratories, plants, or offices there. Leftist groups have been deploring data banks as still another tool of capitalist oppression. The situation is further complicated by Toulouse's history as a refuge for Anarchist refugees from the Spanish Civil War; the anti-authority tradition is strong there.

The durability and size of the anti-computer opposition is difficult to assess, though its fierceness cannot be doubted. The government insists that its goals are unaffected by the Toulouse outbreaks. But what must be observed about computer systems and data banks is that unlike nuclear power stations, they are relatively easy to get at and disrupt.—FS

NSF Grants Boston, Appalachia Funds for Public Science Centers

In a program carefully designed to avoid offense to anyone who might make trouble, the National Science Foundation has awarded funds to establish what it calls Public Service Science Centers in Boston and central Appalachia.

The Centers, according to an NSF announcement, are to function as "neutral forums in which understandable and reliable information about the scientific aspects of public policy will become more widely available to citizens and their organizations." That means that they're not to stir up passions about nuclear power, industrial pollution, or any other such stuff that arouse the cave-dwelling anti-regulators on Capitol Hill.

The idea of venturing into this area did not originate with NSF, but was forced on the Foundation by various friendly legislators, prominent among them Senator Edward Kennedy, who felt NSF ought to be doing more to acquaint the public with scientific and technical issues that influence public affairs. The outcome of these legislative pressures is NSF's minimal effort to pacify its friends in Congress, while not arousing its natural enemies.

One of the grants is to the Boston Neighborhood Network for Community Science and Technology, located at MIT's Laboratory of Architecture and Planning, with links to Tufts and Boston University. NSF says the Boston group will focus on "future energy needs and supplies, environmental impacts, planning for public school facilities, banks and credit availability, neighborhood changes, and the location of community residences." For this conglomeration of purposes, NSF is putting out $260,000 over three years.

The Appalachian project involves nine programs spread among Kentucky, Virginia, Tennessee, North Carolina, and Ohio, with a total cost of about $200,000

(Continued on Page 7)

News Notes: China, NIE, Japan, House S&T Post

Selection of the third annual batch of American graduate students and faculty members for study and research in China has been announced by the US Committee on Scholarly Communications with the People's Republic of China (CSCPRC).

The new group, which will go to China early in September, mostly for one-year stays, numbers 20 predoctoral graduate students and 31 senior researchers from 11 US institutions. The disciplines involved are in the social sciences, humanities, and physical and natural sciences. The CSCPRC is a consortium of scholarly organizations; address: CSCPRC, National Academy of Sciences, 2101 Constitution Ave. Nw., Washington, DC 20418; tel. (202) 389-6136.

●

Rep. Larry Winn Jr. (R-Kansas) is moving fast to sew up the top Republican spot on the House Science and Technology Committee now that the occupant, Rep. John W. Wydler (R-NY), is retiring.

A Committee press release titled "News from the Minority," says that with Wydler leaving, "the Republican leadership position on the House Committee . . . will probably go to Winn," who's the top Republican on the Space Science and Applications Subcommittee. And it quotes Wydler as saying, "Of course, this is a matter for the members of the 97th Congress to decide, but as next in line in seniority on the Committee, I think Larry Winn would make an excellent choice as the Full Committee Ranking Minority Member."

●

Michael Timpane has been appointed Director of the National Institute of Education, part of the new-born Department of Education. Timpane was Deputy Director of NIE from 1977-79 and was Acting Director since the resignation last June of Patricia A. Graham.

A vague but ambitious-sounding US-Japan Science and Technology Agreement was signed May 1 in Washington by President Carter and Japanese Prime Minister Ohira, but just what it will mean in concrete terms is unclear.

The agreement is intended to promote joint activities outside the energy field — where there's already some bilateral activity — according to a White House announcement. But the communique that accompanied the signing does not suggest that anything important is about to happen quickly. It states that "both sides have identified some 40 initial projects . . . for implementation under the new program." But it adds that "Most of these projects, because of their complexity, require extensive program definition and project planning work. Contact points on each side have been named for all of the proposed projects, and consultations are currently underway."

In Print

Reentry Programs for Female Scientists: Final Report, survey of National Science Foundation programs for assisting women to resume scientific and engineering careers; 195 pages, $18.95, Praeger Publishers, 521 Fifth Ave., New York, NY 10017.

The Seeds of Artificial Intelligence, issued by the Division of Research Resources, National Institutes of Health, with focus on application of computers and related devices to biomedical research; 74 pages, single copies available without charge from: Office of Science and Health Reports, Division of Research Resources, NIH, Bethesda, Md. 20205.

NSF *Continued from Page 6)*

for three years. NSF says, "Projects will include citizens surveys and caucuses, educational workshops and demonstrations, scientific and technological consultation, and the development of educational materials and a science resource library."

NSF says other projects of this kind, all under its Science for Citizens Program, will be announced later. Official information about how to get in on this form of enterprise is contained in NSF Publication SE 80-64, available from: National Science Foundation, Forms and Publications, 1800 G St. Nw., Washington, DC 20550.

Subscription Form

Science & Government Report
Northwest Station
Box 6226A
Washington, D.C. 20015

☐Renew my subscription; ☐Check enclosed

☐Enter my subscription; ☐Please bill

Institutional subscribers: one year, $89.50☐; two years, $168.50☐

Individual subscribers: one year, $48.50☐; two years, $82.50☐

(Overseas airmail, $17.50 per year additional.)

Name _____

Address _____

_____ Zip _____

In Quotes: Getting Ahead at the Old AEC

The following excerpt is from testimony April 18 by Nuclear Regulatory Commissioner Peter Bradford before the Senate Governmental Affairs Committee:

●

. . .the (Atomic Energy) Commission concluded early in the game — by this I mean basically the late 1960s and early 1970s — that adequate fundamental levels of safety had been attained and that the principal challenge . . . was to develop a licensing system capable of issuing some 40 construction permits and 40 operating licenses per year over the last two decades of this century. . .

In this environment, the raising of new safety concerns was no way for an AEC staffer to get ahead, especially in light of the siege mentality induced by occasional intervenor court successes and the emergence of perceptible public skepticism. To have objected to the issuance of a license because of inadequate operator training or emergency planning or small break loss of coolant analysis would have put a staffer's career very much at odds with the explicit "Don't turn over new rocks" type of guidance that came down from the agency's higher levels. On several occasions, the Atomic Energy Commissioners chose not to know or not to disclose information tending to raise safety-related doubts about the nuclear licensing program.

For example, in the late 1960s, the AEC explicitly chose not to receive letters from its Advisory Committee on Reactor Safeguards on the subjects of reactor siting in populated areas and failures in the primary system, in substantial part because of adverse impact on the industry and potential public "misunderstanding." At the same time, a study showing adverse consequences greater than previously realized from a major reactor accident was labeled "incomplete" and withheld for eight years until the FOIA forced its release. In the mid-1970s, citizen petitions detailing the inadequacy of emergency planning around reactor sites were rejected.

I mention these examples to show how serious a misconception can arise from the acceptance of the proposition that the safety shortcomings revealed by TMI are merely the inadvertent consequence of an unwieldy management structure. Until recently, something very different was at work. The regulatory agency was as resolutely managed as any in America, but it was managed on the fundamental premise that adequate levels of safety had already been attained. It is in the firm application of that premise, not in the images and rhetoric of mismanagement or non-management underlying this plan, that you will find the roots of the accident at Three Mile Island. The agency was not undermanaged. It was misdirected. . .

Science & Government Report
Northwest Station
Box 6226A
Washington, D.C. 20015

Second class postage paid at Washington, D.C.

9999
Xerox-University Microfilms
300 N. Zeeb Rd
Ann Arbor MI 48106